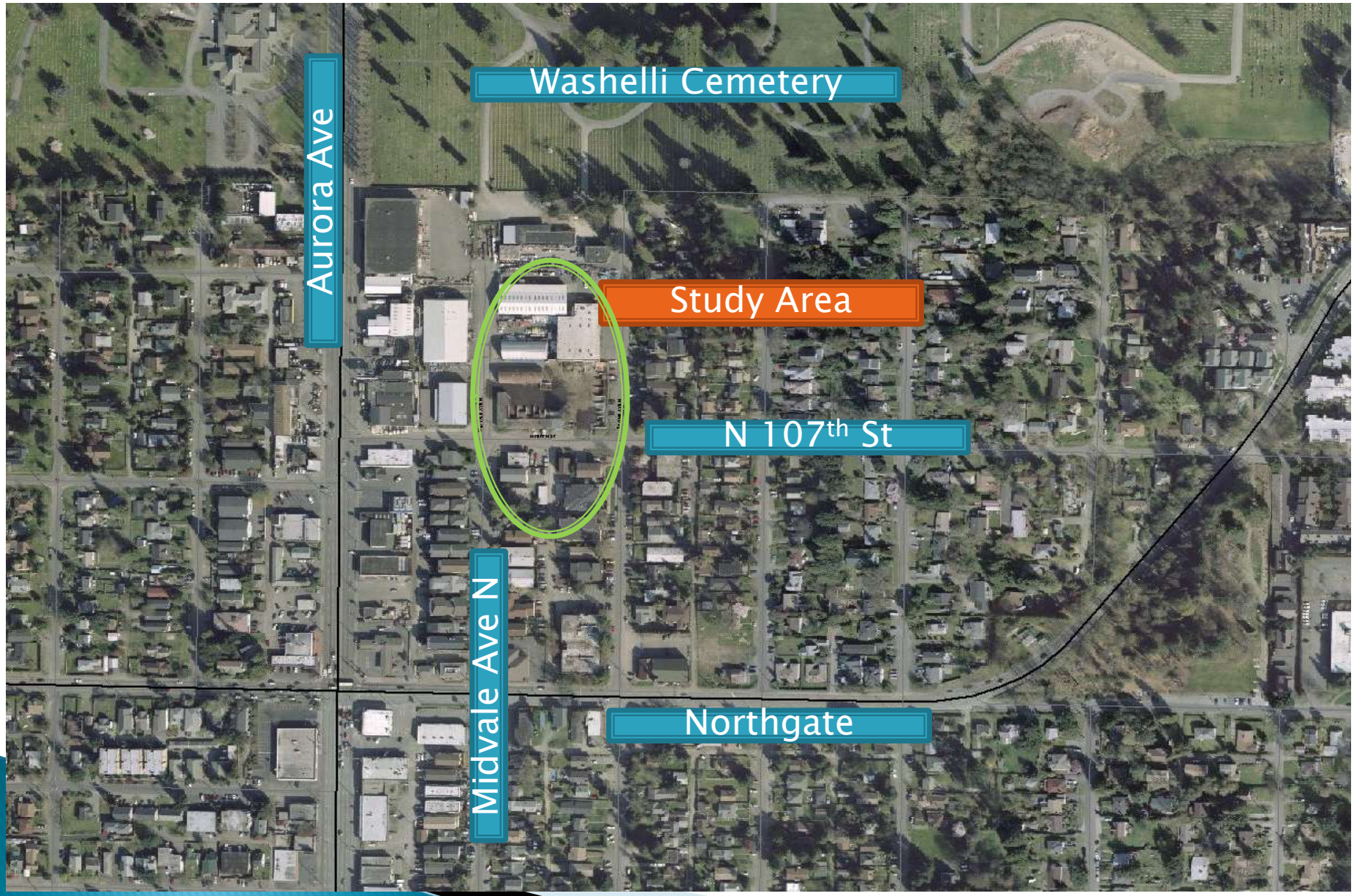
N 107th St & Midvale Ave N Stormwater Facility

Community Meeting 2/23/10

Project Presentation

1. Description of Problem
2. Project Goal/Vision
3. Densmore Basin Overview
   - Status Quo
   - Basin-Wide Issues
4. Options Considered
5. Pond – description, Ashworth
6. Pond logistics – budget, schedule, team
7. Challenges

N 107th St & Midvale Ave N. Study Area



1. Description of Problem

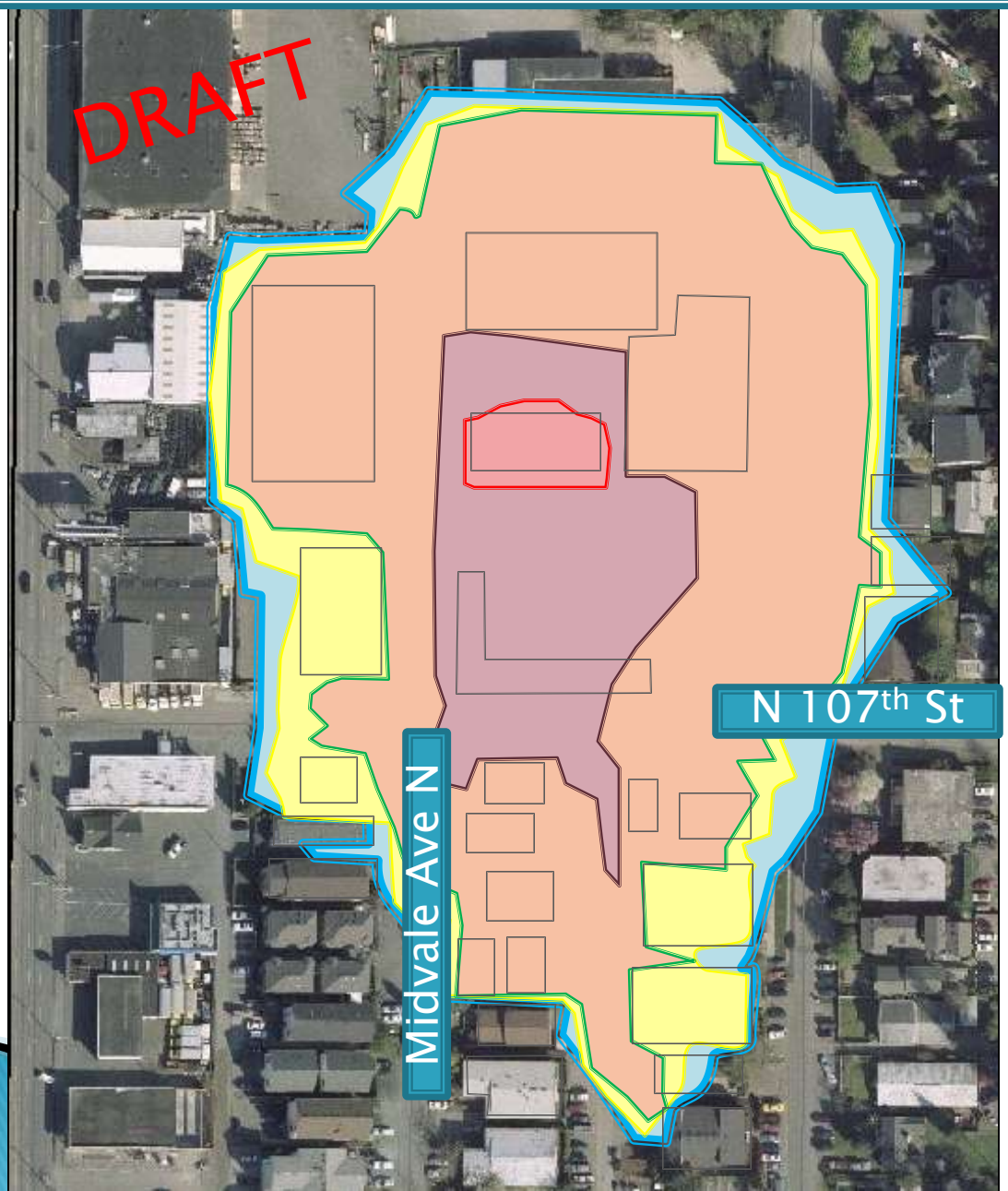
- Closed contour – 1897 area known as Oak Lake
- Junction of Bitter Lake and Haller Lake Storm Sewer Mains at N. 115th Street
- Areas north of 85th Ave were annexed to the City in the 1950's.
- At N. 107 St. & Midvale Ave. N., the storm Sewer pipe decreases in diameter
- Storm mainline leading to Green Lake/Lake Union carries 5 to 10-year storm

Oak Lake – 1897

Flooding Impacts

- Storm drain begins surcharging at 2 to 5-yr storm
  - Businesses start flooding at 5-yr storm
  - Homes start flooding at 20-yr storm
  - Daylight basement apartments severely flooded
- December 2007 storm flooded large area

1A: Existing Conditions – Flood Prediction Map



Storm	Elevation
5-yr	319
10-yr	320.5
25-yr	323
100-yr	323.7
Dec 07	324.5

December 2007 Flood Photos

N 107th St between Midvale Ave N and Stone Ave N

SE corner of Midvale & N 107t St

December 2007 Flood Photos

Daylight basement apartments
On Midvale south of N 107th St

Intersection of Midvale & N 107th St

December 2007 Flood Photos

Condo parking garage off alley between Stone & Midvale south of N 107th St

Alley between Stone & Midvale South of N 107th St

2. Project Goal/Vision

- Provide 25-yr Level of Service to the neighborhood near 107th & Midvale
- No homes or business flood at 25-yr storm event
- 25-year storm definition
- OK if yards, parking lot and roadway flood
- Roadways are accessible

3. Densmore Basin Overview
– Status Quo –

- Storm Observer Program
- Alarms within storm main at 107th & Midvale w/ a City Camera monitoring intersection
- 107 & Midvale Vicinity designated as Flood Prone
  - Restrictions on future development
- Private Detention Facilities
  - SPU Inspected & Enforcement when not complainant
- Annual SPU O&M inspections at critical locations

3. Densmore Basin Overview
– Basin Wide Issues –

Potential Densmore Basin Drainage Projects:

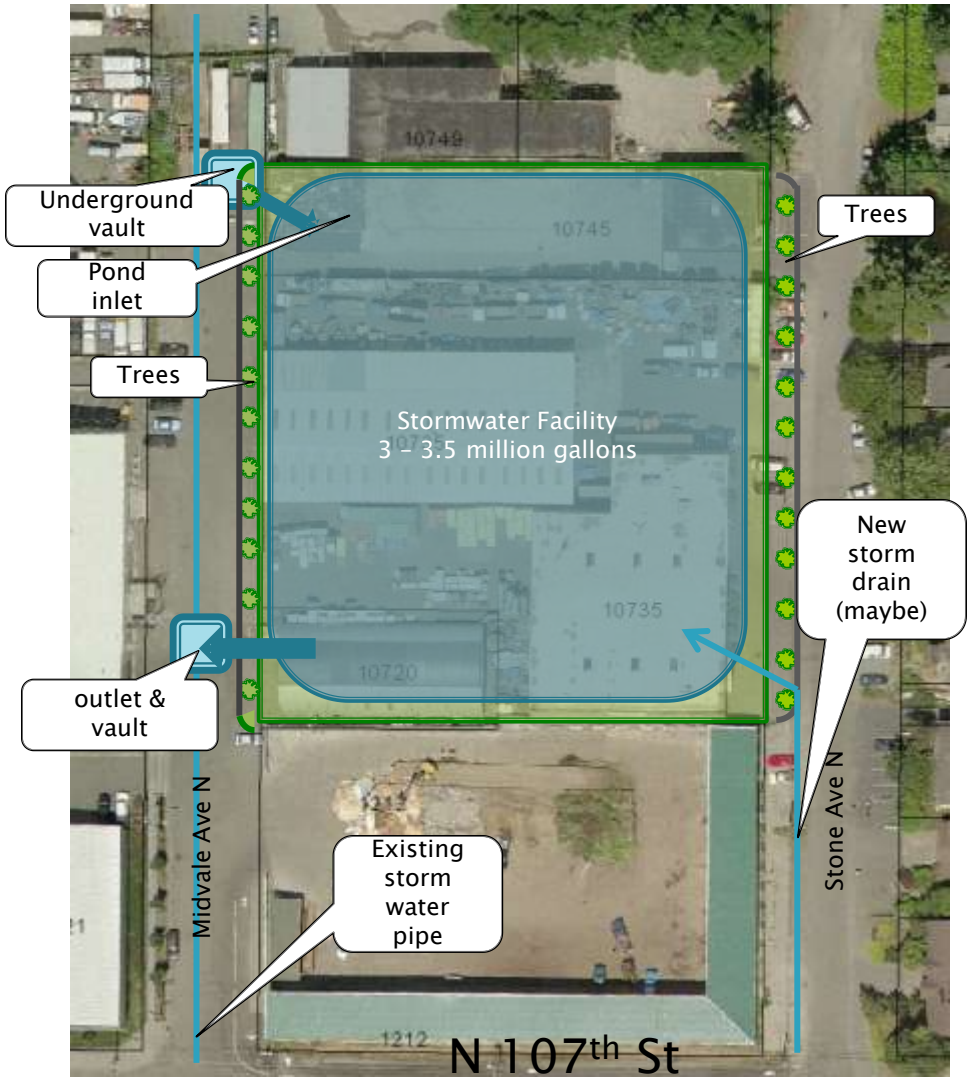
- SDOT's Aurora Ave. N. Project – (Phased Project)
- SDOT's Linden Ave. Project – N. 130th St. to N. 143rd St.
- N. 128th St. and Northpark Ave. Vicinity – Upgrade Drainage System
- Evanston Ave. between N. 96th to N. 97th St. – Upgrade Drainage System
- Ashworth Ave. between N. 95nd to N. 97th St. – Upgrade Drainage System
- Monitoring performance of existing private drainage detention facilities
- Optimal implementation of Green Stormwater Infrastructure within Basin

4. Options Considered

1. Property Purchases
2. By pass pipe (to Green Lake)
3. Green Stormwater Infrastructure
4. Stormwater facility (detention pond) – Selected Option

Not considered – an $80M upgrade to the existing storm drain.

4. Stormwater Facility



Ashworth Pond- existing detention pond located ½ mile north

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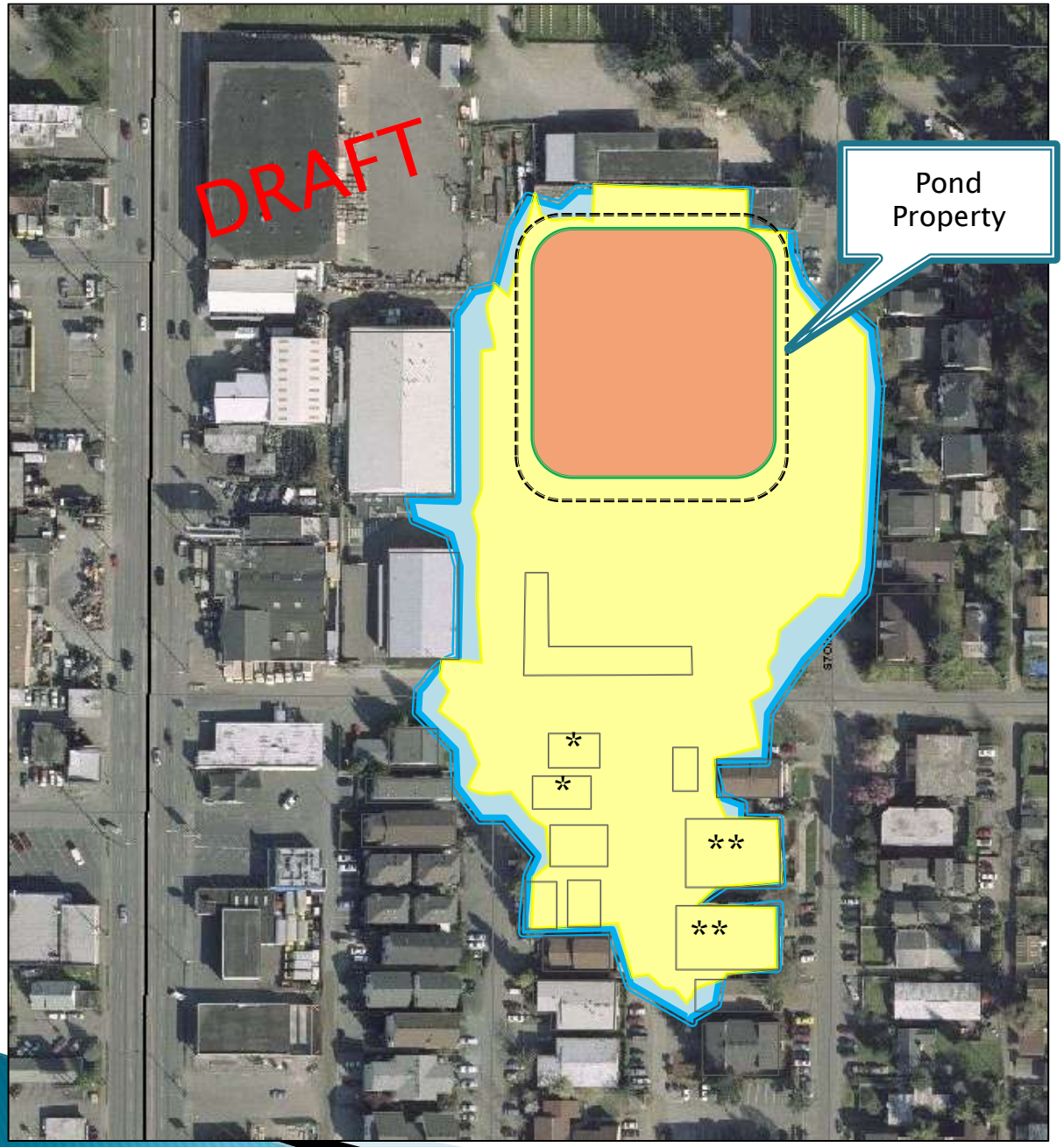


Detention Pond provides 25-yr level of service

Storm	Elevation
5-yr	no flood
10-yr	no flood
25-yr	no flood
100-yr	321.8
Dec 07	322.5

*Less than 1-ft of flooding at 100 yr
**Flooded parking garages

Existing Building at Proposed Pond Site

Existing Building at Proposed Pond Site

Analysis done to date

- Fly over survey to get detailed topography
- Survey crews shot elevations of thresholds
- Hydraulic modeling of storm flows
- Modeling of flood events
- Investigation for contaminated soils
- Property purchase underway

Draft Schedule

- Property Purchase — winter/spring 2010
- Design — spring – fall 2010
- Construction — spring – fall 2011

Budget

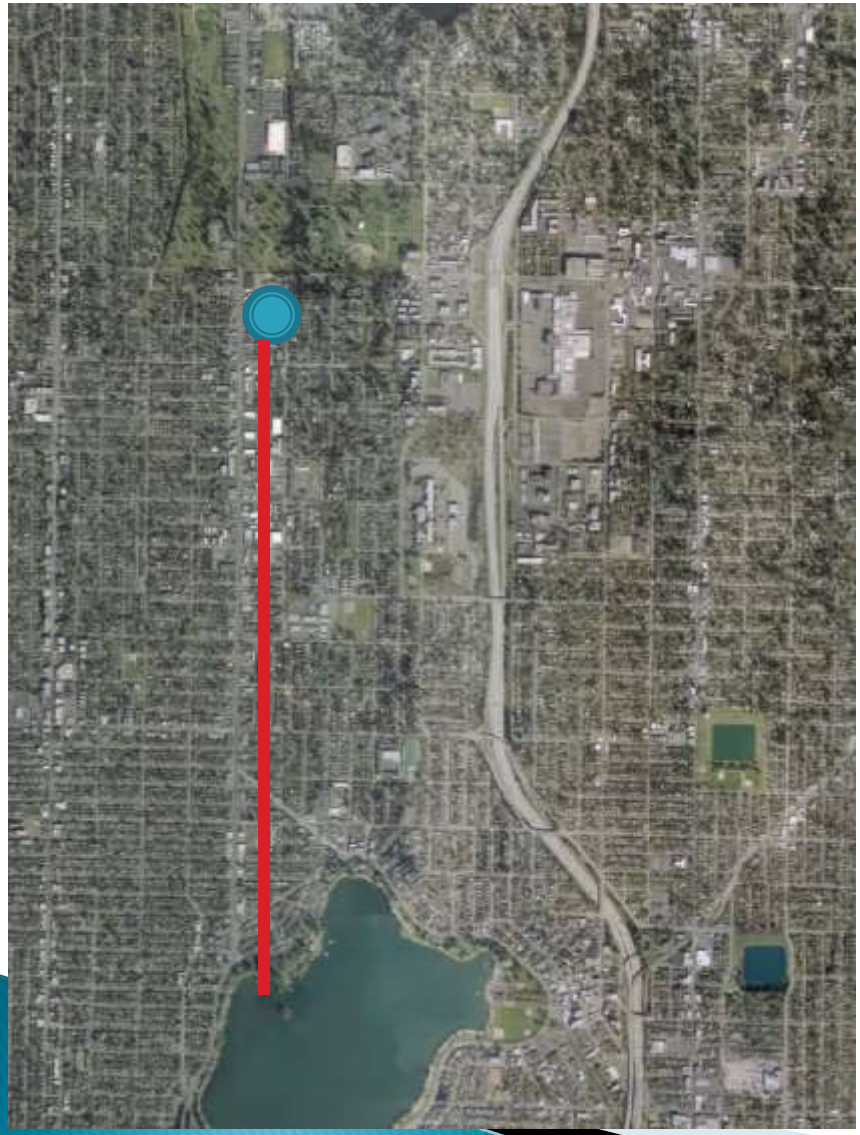
Property	$5 M
Design	$0.3M
Construction (SPU)	$0.2M
Contractor	$3 M
Contingency	$1 M
Total	$9.8M

Questions?

Option 1 Property Purchase

Purchase price for buildings flooding in 25-yr event: $13M – $20M

Option 2 By-Pass



Pump Station

Green Lake

Ball park est. $60M

Option 3: Green Infrastructure

- Build : rain gardens, planting strips, green roofs and porous paving
- Implementation could take many years
- Good local benefit, limited flood reduction to project area.